

CLAIMS

1. Method for representing a sequence of pictures grouped in sets of at least two successive pictures, called GOPs, a textured, meshed three-dimensional model being associated with each of said GOPs,
5 wherein the three-dimensional model associated with the GOP of level n is represented by means of an irregular mesh taking account of at least one vertex of at least the irregular mesh representing the three-dimensional model associated with the GOP of level $n-1$, said vertex being called common vertex.
2. Method of representation according to claim 1, wherein at least two
10 consecutive three-dimensional models also have, associated with them, a basic model, built from said vertices common to said at least two three-dimensional models.
3. Method of representation according to any of the claims 1 and 2, wherein
15 the passage from one of said three-dimensional models to another is done by wavelet transformation, using a first set of wavelet coefficients.
4. Method of representation according to any of the claims 1 to 3, wherein one of said three-dimensional models is obtained from said associated basic model by wavelet transformation, using a second set of wavelet coefficients.
5. Method of representation according to any of the claims 1 to 4, wherein said
20 irregular mesh of level n is a two-dimensional irregular mesh of one of the pictures of said GOP of level n .
6. Method of representation according to claim 5, wherein said meshed picture is the first picture of said GOP of level n .
7. Method of representation according to any of the claims 1 to 6, wherein
25 each of said three-dimensional models is obtained by elevation of said irregular mesh representing it.
8. Method of representation according to any of the claims 5 to 7, wherein said irregular two-dimensional mesh is obtained by successive simplifications of a regular triangular mesh of said picture.

9. Method of representation according to any of the claims 5 to 7, wherein said irregular two-dimensional mesh is obtained from a Delaunay mesh of predetermined points of interest of said picture.
10. Method of representation according to any of the claims 1 to 9, wherein two successive GOPs have at least one common picture.
11. Method of representation according to any of the claims 1 to 10, wherein said vertices common to said levels $n-1$ and n are detected by estimation of motion between the first picture of said GOP of level $n-1$ and the first picture of said GOP of level n .
12. Method of representation according to claim 11, wherein it includes a step for the storage of said detected common vertices.
13. Method of representation according to any of the claims 1 to 12, wherein said irregular mesh representing said model associated with the GOP of level n also takes account of at least one vertex of at least the irregular mesh representing the model associated with the GOP of level $n+1$.
14. Method of representation according to any of the claims 4 to 13, wherein said second set of wavelet coefficients is generated by the application of at least one analysis filter on a semi-regular re-meshing of said associated three-dimensional model.
15. Method of representation according to any of the claims 3 to 14, wherein said wavelets are second-generation wavelets.
16. Method of representation according to any of the claims 3 to 15, wherein said wavelets belong to the group comprising:
- piecewise affine wavelets;
 - polynomial wavelets;
 - wavelets based on the Butterfly subdivision scheme.
17. Signal representing a sequence of pictures grouped in sets of at least two successive pictures called GOPs, a textured, meshed three-dimensional model being associated with each of said GOPs,
- wherein it comprises:

- at least one field containing a basic model built from vertices common to at least two irregular meshes, each representing a three-dimensional model, said at least two three-dimensional models being associated with at least two successive GOPs;
- 5 - at least one field containing a set of wavelet coefficients used for the construction, by wavelet transformation from said basic model, of at least one three-dimensional model associated with one of said GOPs ;
- at least one field containing at least one texture associated with one of said three-dimensional models;
- 10 - at least one field containing at least one camera position parameter.

18. Device for representing a sequence of pictures implementing the representation method of any of the claims 1 to 16.

- 19.** Device for representing a sequence of pictures grouped in sets of at least two successive pictures, called GOPs, a textured, meshed three-dimensional model being associated with each of said GOPs.
- 15 wherein it comprises:

- means for the building of said three-dimensional models by wavelet transformation of at least one basic model, prepared from vertices common to at least two irregular meshes representing two successive three-dimensional models;
- 20 - means for representing said pictures of the sequence from said three-dimensional models, from at least one picture of texture and from at least one camera position parameter.

- 20.** Device for the encoding of a sequence of pictures grouped in sets of at least two successive pictures, called GOPs, a textured, meshed three-dimensional model being associated with each of said GOPs,
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wherein it comprises means for the encoding of a three-dimensional model associated with the GOP of level n, said three-dimensional model being represented by means of an irregular mesh taking account of at least one vertex of

at least one irregular mesh representing the three-dimensional model associated with the GOP of level $n-1$.